

MAGNET SWEEP

PRIORITY DATA

This application claims the benefit of U.S. Provisional Application Ser. No. 60/448,751, filed on February 20th, 2003, and is hereby incorporated by reference.

5

BACKGROUND OF THE INVENTION

The present invention relates to devices for attracting metal pieces present on a surface.

The surface areas of industrial and educational work spaces require regular maintenance. For example, machining of a metal workpiece in an industrial work space creates metal chips that litter the surface of the work space. The chips must then be removed from the surface to maintain the industrial work space. Frequently, the chips litter the surface of the work space that lies between a wall of the industrial work space and the side wall of a structure (e.g., a machine) present in the industrial work space. Chips littering such tough to reach surfaces hamper the efficient removal of the chips from the surface. The device of the present invention addresses this problem.

BRIEF SUMMARY OF THE INVENTION

The invention is directed to a magnet sweep comprising a longitudinal member having a first and a second end. Attached to the second end is a housing. A first magnet is secured to the first end and a second magnet is positioned within the housing. In operation, the user of the magnet sweep moves the housing along a surface to attract metal particles thereon. Securing the first magnet to the first end allows the user of the magnet sweep to attract metal particles present

on tough to reach surfaces, e.g., behind file cabinets, work benches, corners, et cetera., to the first magnet by manipulation of the member in areas where tough to reach surfaces exist.

In one aspect of the invention, the housing comprises a substantially rectangular chamber having a side walls and a hollow shaft which extends upwardly from the chamber. The second magnet is secured within the chamber and the first magnet is secured within a cavity formed in the first end. The second end is received in the hollow shaft and can be secured thereto by screws, rivets, adhesives, etc.

In one embodiment, the second magnet comprises a plurality of magnets disposed within the chamber. A metal plate is positioned over the magnets and secured to the chamber with threaded fasteners.

In yet another aspect of the invention, the member comprises a pole. The first magnet can be secured within the cavity by gluing the magnet in the cavity and the second magnet can be secured to the housing by screws, rivets, adhesives, etc.

In another aspect of the invention, the housing comprises a chamber and a shaft extending upwardly therefrom. The shaft is pivotally attached to the chamber. Alternatively, the shaft can be rotatably attached to the base. The second magnet is secured within the chamber and the second end is received in the shaft.

In yet another aspect of the invention, the housing comprises a chamber having a grooved rear and front side, a post integral with the chamber and a slide that includes front, rear and bottom portions. The front and rear portions each include a projection. The projection of the front end is received in the groove of the front side and the projection of the rear portion is received in the groove of the rear side thereby fitting the slide to the base. The second magnet is secured within the chamber by positioning a metal plate over the second magnet and connecting

the metal plate to the chamber. In operation, the user of the magnet sweep moves the now magnetized metal plate along a surface, e.g., a floor, to attract metal particles present on the floor to the magnetized metal plate. To remove the attracted particles from the magnetized metal plate, the user can then move the slide along the length of the chamber, the sides of the bottom
5 portion knocking of the attracted particles from the magnetized metal plate.

In another aspect of the invention, the member is collapsible to allow for easy storage. For example, the member can be jointed to allow the folding thereof.

In yet another aspect of the invention, the member comprises a telescoping member that allows the member to collapse for easy storage.

10 These and other objects, features and advantages of the present invention will become more apparent in light of the following detailed description of preferred embodiments thereof, as illustrated in the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

15 FIG. 1 is a perspective view of a magnet sweep;

FIG. 2 is a partial bottom cut-a-way view of FIG. 1;

FIG. 3 is a perspective view of an alternative embodiment of FIG. 1;

FIG. 4 is a partial cross-sectional view of FIG. 1;

FIG. 5 is a partial perspective view of an alternative embodiment of FIG. 1;

20 FIG. 6 is a partial perspective view of an alternative embodiment of FIG 5; and

FIG. 7 is a partial front view of an alternative embodiment of FIG. 6.

DETAILED DESCRIPTION OF THE INVENTION

FIG. 1 is a perspective view of a magnet sweep 10. The magnet sweep 10 comprises a longitudinal member 20, e.g., a pole, having a first end 22 and a second end 24 and a housing 30 which is connected to the second end 24. The longitudinal member 20 can be constructed of wood, plastic, wood/plastic composites, metals, etc., and the housing 30 can be constructed from plastic, wood, wood/plastic composites, etcetera.

FIG. 2 is a partial top cross-section view of FIG. 1. Referring to FIGs. 1 and 2, the housing 30 can be constructed of plastic and comprises a chamber 32 and an extension 34. The extension 34 is secured to the chamber 32 by a fastener 25. A cylindrical magnet (not shown) is disposed within the first end 22 and a plurality of magnets 80 are disposed within the chamber 32.

The plurality of magnets 80 are frictionally fitted within the chamber 32 between longitudinal barriers 26. Each longitudinal barrier 26 extends along the length L of the chamber 32. Six threaded tubes 27 (only 4 shown) are integrally disposed within the chamber 32. A metal plate 81 having six tubes 82 (only 2 shown) is positioned over the magnets 80. The metal plate 81 is positioned over the magnets 80 such that the bores 82 are aligned in registration with the six threaded tubes 27. The metal plate 81 is secured to the chamber 32 by threading a fastener into each bore 82 and down into the aligned tube 27.

FIG. 3 is a perspective view of an alternative embodiment of FIG. 1. The chamber 32 comprises a first post 35 and a second post 36 and the extension 34. The extension 34 includes a knob 37. The knob 37 is disposed between the first post 35 and the second post 36 and is pivotally secured to the chamber 32 with a fastener (e.g., screws, rivets) 38.

FIG. 4 is a partial cross-sectional view of FIG.1. The first end 22 has a cavity 40 formed by an edge 42. Positioned within the cavity 40 is a cylindrical magnet 50. The cylindrical magnet 50 is secured within the cavity with an adhesive. The surface of the cylindrical magnet 50 is preferably flush with the edge 42. In another embodiment, at least a portion of the cylindrical magnet can extend above the edge 42.

FIG. 5 is a partial perspective view of an alternative embodiment of FIG. 1. The housing 30 includes a slide 66 which includes a front portion 68, a rear portion 70 and a bottom portion 72. The slide can be constructed of plastic, wood, composites, et cetera. The front 68 and rear 70 portions each include a projection 74 (only one shown).

The chamber 32 has a rear side (not shown), a front side 62, a first end wall 200 and a second end wall 202. The rear side and the front side 62 each have a groove 63 (only one shown) disposed therein. The slide 66 is slidably secured to the chamber 32 by inserting the projection 74 of the front portion 68 in the groove 63 of the front side 62 and inserting the projection (not shown) of the rear portion (not shown) in the groove of the rear side (not shown).

In operation, the user of the magnet sweep 10 moves the chamber 32 along a surface, e.g., a floor, to attract any metal particles, e.g., staples, bolts, nuts, etc., present on the floor to the metal plate 81. The magnets 80 attract the metal particles to the metal plate 81. The user by hand can then move the slide 66 along the length L of the chamber 32 in the either direction indicated by the arrows to remove the particles attracted to the metal plate 81. In confronted with metal particles present on a work surface in a tough reach area, the user manipulates the longitudinal member 20 in such a way to attract the metal particles to the magnet (not shown) secured to the first end (not shown) of the longitudinal member 20.

FIG. 6 is a partial perspective view of an alternative embodiment of FIG 5. The bottom portion 72 has a first side wall 90 and second side wall (not shown). The first side wall 90 and the second side wall (not shown) angularly extend from the bottom portion 72 toward the metal plate 81 to facilitate the removal of attracted metal particles when the slide 66 is moved by hand
5 along length L.

FIG. 7 is a partial front view of an alternative embodiment of FIG. 6. In this embodiment, a shaft 100 extends upwardly from said chamber 32. The second end 24 of the longitudinal member 20 is comprised of a knob 102. The interior of the chamber 104 is configured to mate with at least a portion of the knob 102. The knob 102 is snap-fitted into the
10 interior of the chamber 104 to rotatably connect the pole 20 to the base 60.

Although the present invention has been shown and described with a preferred embodiment thereof, various changes, omissions and additions to the form and detail thereof, may be made therein, without departing from the spirit and scope of the invention.

What is claimed is: